[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-0923; Project Identifier AD-2022-01432-T]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive (AD) 2022-09-18, which applies to all The Boeing Company Model 707, 717, and 727 airplanes; Model DC-8, DC-9, and DC-10 airplanes; Model MD-10 and MD-11 airplanes; Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), and MD-88 airplanes; and Model MD 90-30 airplanes. AD 2022-09-18 requires revising the limitations and operating procedures sections of the existing airplane flight manual (AFM) to incorporate specific operating procedures for, depending on the airplane model, instrument landing system (ILS) approaches, non-precision approaches, ground spoiler deployment, and go-around and missed approaches, when in the presence of 5G C Band interference as identified by Notices to Air Missions (NOTAMs). Since the FAA issued AD 2022-09-18, the FAA determined that additional limitations are needed due to the continued deployment of new 5G C-Band base stations whose signals are expected to cover most of the contiguous United States at transmission frequencies between 3.7-3.98 GHz. This proposed AD would require revising the limitations and operating procedures sections of the AFM to incorporate specific operating procedures for, depending on the airplane model, ILS approaches, non-precision approaches, ground spoiler deployment,

and go-around and missed approaches, due to the presence of 5G C-Band interference. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to regulations.gov. Follow the instructions for submitting comments.

• Fax: 202-493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

AD Docket: You may examine the AD docket at regulations.gov under Docket No. FAA-2023-0923; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Brett Portwood, Continued Operational Safety Technical Advisor, COS Program Management Section, Operational Safety Branch, FAA, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 817-222-5390; email: operationalsafety@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2023-0923; Project Identifier AD-2022-01432-T" at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend the proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to regulations.gov, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this proposed AD.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Brett Portwood, Continued Operational Safety Technical Advisor, COS Program Management Section, Operational Safety Branch, FAA, 3960 Paramount Boulevard, Lakewood, CA

90712-4137; phone: 817-222-5390; email: operationalsafety@faa.gov. Any commentary that the FAA receives that is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA issued AD 2021-23-12, Amendment 39-21810 (86 FR 69984, December 9, 2021) (AD 2021-23-12), for all transport and commuter category airplanes equipped with a radio altimeter. AD 2021-23-12 was prompted by a determination that radio altimeters cannot be relied upon to perform their intended function if they experience interference from wireless broadband operations in the 3.7-3.98 GHz frequency band (5G C-Band). AD 2021-23-12 requires revising the limitations section of the existing AFM to incorporate limitations prohibiting certain operations requiring radio altimeter data when in the presence of 5G C-Band interference as identified by NOTAMs. The agency issued AD 2021-23-12 because radio altimeter anomalies that are undetected by the automation or pilot, particularly close to the ground (e.g., landing flare), could lead to loss of continued safe flight and landing.

The FAA subsequently identified an additional hazard presented by 5G C-Band interference on The Boeing Company Model 707, 717, and 727 airplanes; Model DC-8, DC-9, and DC-10 airplanes; Model MD-10 and MD-11 airplanes; Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), and MD-88 airplanes; and Model MD-90-30 airplanes, and issued AD 2022-09-18, Amendment 39-22038 (87 FR 31097, May 23, 2022) (AD 2022-09-18). AD 2022-09-18 was prompted by a determination that, during approach, landings, and go-arounds, as a result of 5G C-Band interference, certain airplane systems may not properly function, resulting in increased flightcrew workload while on approach with the flight director, autothrottle, or autopilot engaged. AD 2022-09-18 requires revising the limitations and operating procedures sections of the existing AFM to incorporate specific operating procedures for, depending

on the airplane model, ILS approaches, non-precision approaches, ground spoiler deployment, and go-around and missed approaches, when in the presence of 5G C-Band interference as identified by NOTAMs. The agency issued AD 2022-09-18 to address 5G C-Band interference that could result in increased flightcrew workload and could lead to reduced ability of the flightcrew to maintain safe flight and landing of the airplane.

Actions Since AD 2022-09-18 Was Issued

Since issuing AD 2022-09-18, the FAA determined that additional limitations are needed due to the continued deployment of new 5G C-Band base stations whose signals are expected to cover most of the contiguous United States at transmission frequencies between 3.7-3.98 GHz. Therefore, the FAA issued an NPRM, Docket No. FAA-2022-1647 (88 FR 1520, January 11, 2023) (the NPRM), proposing to supersede AD 2021-23-12. In the NPRM, the FAA proposed to retain most of the operational prohibitions required by AD 2021-23-12 until June 30, 2023; on or before June 30, 2023, operators would be required to revise their existing AFM to prohibit these operations unless the airplane has a radio altimeter meeting proposed minimum performance levels (a defined power spectral density (PSD) curve as well as a defined aggregate spurious emission level) and is operating at a 5G C-Band mitigated airport (5G CMA). In the NPRM, the FAA also proposed to require all airplanes operating under 14 CFR part 121 to have a radio altimeter meeting the proposed minimum performance standards by February 1, 2024.

Since the NPRM was published, the FAA has determined that a PSD curve is a more appropriate method to define performance than a single fixed emission level. The proposed PSD curve more accurately reflects differences in radio altimeter susceptibility to interfering emissions at different altitude levels. The FAA plans to issue guidance on how to show compliance with both the fundamental PSD curve and spurious PSD curve, including the data to be submitted, for the FAA to approve the method used.

AD 2022-09-18 relies on the FAA's use of NOTAMs to identify 5G C-band interference at certain airports in the U.S. airspace. As explained in more detail in the NPRM, those NOTAMs are no longer the best means of communicating the location of the 5G C-Band environment. Therefore, this proposed AD would retain the AFM limitations and operating procedures required by AD 2022-09-18 until June 30, 2023. On or before June 30, 2023, this proposed AD would require operators to replace the limitations with limitations prohibiting the same operations, except the prohibitions would not be tied to NOTAMs but instead would depend on whether the airplane is operated at a 5G CMA as identified by an FAA Domestic Notice. Because the applicable 5G C-Band Interference operating procedures required by AD 2022-09-18 reference AD 2021-23-12 for certain prohibited ILS approaches, this proposed AD would require operators to replace the procedure with an operating procedure containing the same information, except it would list the specific prohibited ILS approaches.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Proposed AD Requirements in this NPRM

This proposed AD would retain the AFM revisions required by AD 2022-09-18 until June 30, 2023. On or before June 30, 2023, this proposed AD would require replacing those AFM revisions with limitations requiring the same procedures for ILS approaches, non-precision approaches, ground spoiler deployment, and go-around and missed approaches, at all airports for non-radio altimeter tolerant airplanes. For radio altimeter tolerant airplanes, the procedures would not be required at 5G CMAs as identified in an FAA Domestic Notice. The minimum performance levels in this proposed AD for determining whether an airplane is radio altimeter tolerant are the same

minimum performance levels proposed in the NPRM, except the FAA has replaced the proposed fixed emission level with a proposed PSD curve emission threshold that more accurately reflects differences in radio altimeter susceptibility to interfering emissions at different altitude levels.

Paragraph (m)(3) of this proposed AD specifies that AMOCs approved for AD 2021-23-12 providing relief for specific radio altimeter installations would be approved as AMOCs for the requirements specified in paragraph (h) of this proposed AD until June 30, 2023.

Interim Action

The FAA considers that this AD, if adopted as proposed, would be an interim action. Once the Technical Standard Order (TSO) standard for radio altimeters is established, which will follow the existing international technical consensus on the establishment of the minimum operational performance standards (MOPS), the FAA anticipates that the MOPS will be incorporated into the TSO. The FAA also anticipates that aircraft incorporating equipment approved under the new Radio Altimeter TSO will be able to operate in both 5G CMAs and non-5G CMAs with no 5G C-Band-related AFM limitations. Once a new radio altimeter TSO is developed, approved, and available, the FAA might consider additional rulemaking.

Costs of Compliance

The cost information below describes the costs to change the AFM. Although this proposed AD would largely maintain the AFM limitations currently required by AD 2022-09-18, the FAA acknowledges that this proposed AD may also impose costs on some aircraft operators from having to change their conduct to comply with the amended AFM. However, the FAA lacks the data necessary to quantify the costs associated with aircraft operators changing their conduct. The FAA is seeking public comment on these costs so the agency can more fully account for the impact of this regulatory action.

The FAA estimates that this AD, if adopted as proposed, would affect 476 airplanes of U.S. registry.[1] The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
AFM revision (retained actions from AD 2022-09-18)	1 work-hour X $85 per hour[2] = $85	$0	$85	$40,460
New AFM revisions (new proposed action)	1 work-hour X $85 per hour = $85	$0	$85	$40,460[3]

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

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[1] This is the number of Boeing Model 707, 717, and 727 airplanes; Model DC-8, DC-9, and DC-10 airplanes; Model MD 10 and MD-11 airplanes; Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), and MD-88 airplanes; and Model MD 90-30 airplanes on the FAA's registry as of December 1, 2022.

[2] The labor rate of $85 per hour is the average wage rate for an aviation mechanic.

[3] The estimated cost for this revision would not constitute a significant economic impact (even for small entities) because $85 is a minimal cost compared to the regular costs of maintaining and operating a 707, 717, 727, DC-8, DC-9, DC-10, MD 10, MD-11, DC-9-81, DC-9-82, DC-9-83, DC-9-87, MD-88, or MD-90-30 transport category airplane.

Regulatory Findings

The FAA has determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Would not affect intrastate aviation in Alaska, and

(3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by:

a. Removing Airworthiness Directive (AD) 2022-09-18, Amendment 39-22038 (87 FR 31097, May 23, 2022), and

b. Adding the following new AD:

The Boeing Company Airplanes: Docket No. FAA-2023-0923; Project Identifier AD-2022-01432-T.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2022-09-18, Amendment 39-22038 (87 FR 31097, May 23, 2022) (AD 2022-09-18).

(c) Applicability

This AD applies to all The Boeing Company airplanes identified in paragraphs (c)(1) through (9) of this AD, certificated in any category.

(1) Model 707-100 Long Body, -200, -100B Long Body, and -100B Short Body series airplanes, and Model 707-300, -300B, -300C, and -400 series airplanes.

(2) Model 717-200 airplanes.

(3) Model 727, 727C, 727-100, 727-100C, 727-200, and 727-200F series airplanes.

(4) Model DC-8-11, DC-8-12, DC-8-21, DC-8-31, DC-8-32, DC-8-33, DC-8-41, DC-8-42, DC-8-43, DC-8-51, DC-8-52, DC-8-53, DC-8-55, DC-8F-54, DC-8F-55, DC-8-61, DC-8-62, DC-8-63, DC-8-61F, DC-8-62F, DC-8-63F, DC-8-71, DC-8-72, DC-8-73, DC-8-71F, DC-8-72F, and DC-8-73F airplanes.

(5) Model DC-9-11, DC-9-12, DC-9-13, DC-9-14, DC-9-15, DC-9-15F, DC-9-21, DC-9-31, DC-9-32, DC-9-32 (VC-9C), DC-9-32F, DC-9-32F (C-9A, C-9B), DC-9-33F, DC-9-34, DC-9-34F, DC-9-41, and DC-9-51 airplanes.

(6) Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F (KC-10A and KDC-10), DC-10-40, and DC-10-40F airplanes.

(7) Model MD-10-10F and MD-10-30F airplanes.

(8) Model MD-11 and MD-11F airplanes.

(9) Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), MD-88, and MD-90-30 airplanes.

(d) Subject

Air Transport Association (ATA) of America Code 34, Navigation.

(e) Unsafe Condition

This AD was prompted by a determination that radio altimeters cannot be relied upon to perform their intended function if they experience interference from wireless broadband operations in the 3.7-3.98 GHz frequency band (5G C-Band), and a determination that during approach, landings, and go-arounds, as a result of this interference, certain airplane systems may not properly function, resulting in increased flightcrew workload while on approach with the flight director, autothrottle, or autopilot engaged. The FAA is issuing this AD to address 5G C-Band interference that could result in increased flightcrew workload and could lead to reduced ability of the flightcrew to maintain safe flight and landing of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

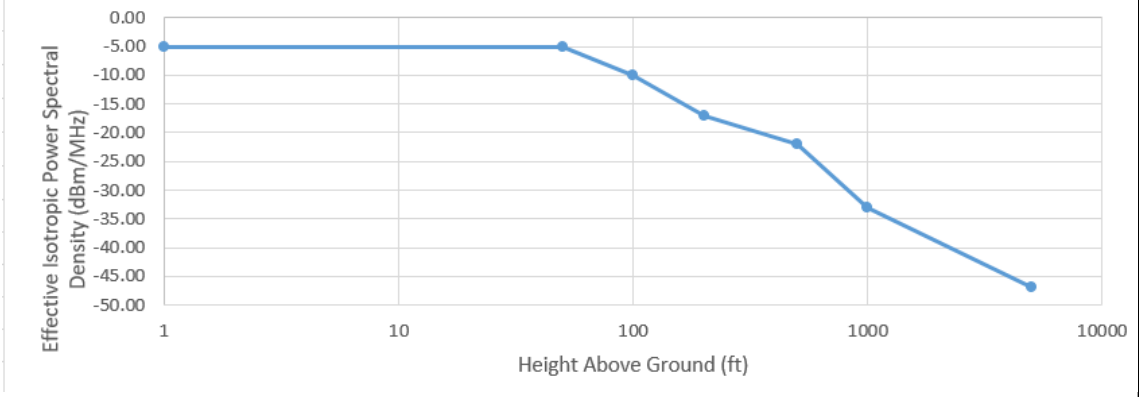
(g) Definitions

(1) For purposes of this AD, a "5G C-Band mitigated airport" (5G CMA) is an airport at which the telecommunications companies have agreed to voluntarily limit their 5G deployment at the request of the FAA, as identified by an FAA Domestic Notice.

(2) For purposes of this AD, a "radio altimeter tolerant airplane" is one for which the radio altimeter, as installed, demonstrates the tolerances specified in paragraphs (g)(2)(i) and (ii) of this AD, using a method approved by the FAA.

(i) Tolerance to radio altimeter interference, for the fundamental emissions (3.7-3.98 GHz), at or above the power spectral density (PSD) curve threshold specified in figure 1 to paragraph (g)(2)(i) of this AD.

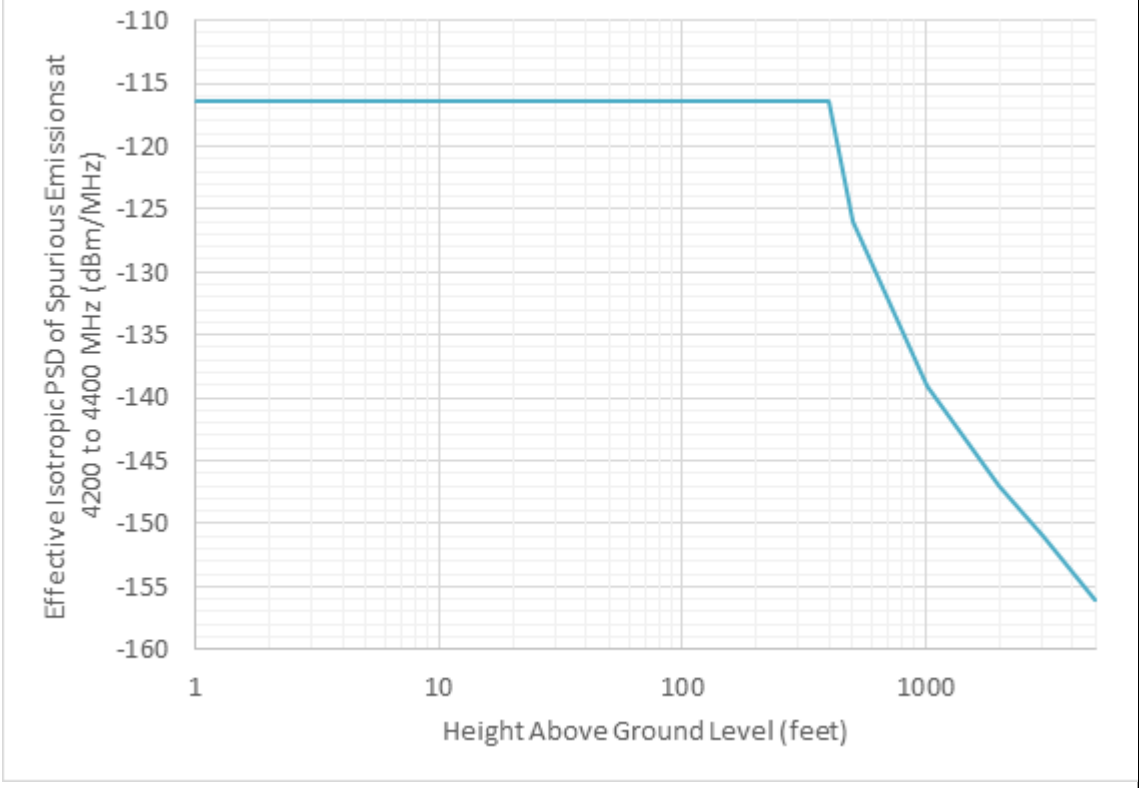
Figure 1 to paragraph (g)(2)(i) – *Fundamental Effective Isotropic PSD at Outside Interface of Aircraft Antenna*



Height above ground (ft)	Effective Isotropic PSD (dBm/MHz)
Aircraft on the ground	-5
50	-5
100	-10
200	-17
500	-22
1000	-33
5000	-47

(ii) Tolerance to radio altimeter interference, for the spurious emissions (4.2-4.4 GHz), at or above the PSD curve threshold specified in figure 2 to paragraph (g)(2)(ii) of this AD.

Figure 2 to paragraph (g)(2)(ii) – *Spurious Effective Isotropic PSD at Outside Interface of Aircraft Antenna*



Aircraft Altitude (ft AGL)	Effective Isotropic PSD (dBm/MHz)
1	-116.50
400	-116.50
500	-126.00
1000	-139.00
2000	-147.00
3000	-151.00
5000	-156.00

(3) For purposes of this AD, a "non-radio altimeter tolerant airplane" is one for which the radio altimeter, as installed, does not demonstrate the tolerances specified in paragraphs (g)(2)(i) and (ii) of this AD.

(h) Retained Airplane Flight Manual (AFM) Revision-Limitations

This paragraph restates the requirements of paragraph (g) of AD 2022-09-18.

(1) For airplanes identified in paragraphs (c)(1) and (c)(3) through (6) of this AD: Within 2 days after May 23, 2022 (the effective date of AD 2022-09-18), revise the Limitations Section of the existing AFM to include the information specified in figure 3

to paragraph (h)(1) of this AD. This may be done by inserting a copy of figure 3 to paragraph (h)(1) of this AD into the existing AFM.

Figure 3 to paragraph (h)(1) – *AFM Limitations Revision for Model 707, 727, DC-8, DC-9 (except DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87)), and DC-10*

(Required by AD 2022-09-18)

Radio Altimeter 5G C-Band Interference, Approach Procedures
The following limitations are required for ILS approaches on runways in U.S. airspace in the presence of 5G C-Band wireless broadband interference as identified by NOTAM (NOTAMs will be issued to state the specific airports or approaches where the radio altimeter is unreliable due to the presence of 5G C-Band wireless broadband interference).

ILS Approaches
Operators must use the Radio Altimeter 5G C-Band Interference, ILS Approaches procedure contained in the Operating Procedures Section of this AFM.

(2) For airplanes identified in paragraphs (c)(2), (7), and (8) of this AD: Within 2 days after May 23, 2022 (the effective date of AD 2022-09-18), revise the Limitations Section of the existing AFM to include the information specified in figure 4 to paragraph (h)(2) of this AD. This may be done by inserting a copy of figure 4 to paragraph (h)(2) of this AD into the Limitations Section of the existing AFM.

Figure 4 to paragraph (h)(2) – *AFM Limitations Revision for Model 717, MD-10, and MD-11*

(Required by AD 2022-09-18)

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around Procedures
The following limitations are required for approaches, landings, or go-arounds on runways, in U.S. airspace in the presence of 5G C-Band wireless broadband interference as identified by NOTAM (NOTAMs will be issued to state the specific airports or approaches where the radio altimeter is unreliable due to the presence of 5G C-Band wireless broadband interference).

ILS and Non Precision Approaches, Landing, and Go-Around
Operators must use the Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around procedures contained in the Operating Procedures Section of this AFM.

(3) For airplanes identified in paragraph (c)(9) of this AD: Within 2 days after May 23, 2022 (the effective date of AD 2022-09-18), revise the Limitations Section of the existing AFM to include the information specified in figure 5 to paragraph (h)(3) of this AD. This may be done by inserting a copy of figure 5 to paragraph (h)(3) of this AD into the Limitations Section of the existing AFM.

Figure 5 to paragraph (h)(3) – *AFM Limitations Revision for Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), MD-88, and MD-90-30*

(Required by AD 2022-09-18)

Radio Altimeter 5G C-Band Interference, Approach Procedures
The following limitations are required for approaches in U.S. airspace in the presence of 5G C-Band wireless broadband interference as identified by NOTAM (NOTAMs will be issued to state the specific airports or approaches where the radio altimeter is unreliable due to the presence of 5G C-Band wireless broadband interference).

ILS and Non Precision Approaches
Operators must use the Radio Altimeter 5G C-Band Interference, Approaches procedures contained in the Operating Procedures Section of this AFM.

(i) Retained AFM Revision-Operating Procedures

This paragraph restates the requirements of paragraph (h) of AD 2022-09-18.

(1) For airplanes identified in paragraphs (c)(1) and (3) through (6) of this AD: Within 2 days after May 23, 2022 (the effective date of AD 2022-09-18), revise the Operating Procedures Section of the existing AFM to include the information specified in figure 6 to paragraph (i)(1) of this AD. This may be done by inserting a copy of figure 6 to paragraph (i)(1) of this AD into the Operating Procedures Section of the existing AFM.

Figure 6 to paragraph (i)(1) – *AFM Operating Procedures Revision for Model 707, 727, DC-8, DC-9 (except DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87)), and DC-10*

(Required by AD 2022-09-18)

Radio Altimeter 5G C-Band Interference, ILS Approaches

ILS Approaches

For ILS approaches not prohibited by AD 2021-23-12, disconnect the autopilot and autothrottles, and place both flight director switches to OFF prior to glideslope intercept.

(2) For airplanes identified in paragraph (c)(2) of this AD: Within 2 days after May 23, 2022 (the effective date of AD 2022-09-18), revise the Operating Procedures Section of the existing AFM to include the information specified in figure 7 to paragraph (i)(2) of this AD. This may be done by inserting a copy of figure 7 to paragraph (i)(2) of this AD into the Operating Procedures Section of the existing AFM.

Figure 7 to paragraph (i)(2) – *AFM Operating Procedures Revision for Model 717*

(Required by AD 2022-09-18)

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

ILS Approaches

For ILS approaches not prohibited by AD 2021-23-12, disconnect the autopilot prior to glideslope intercept.

Note: Possible erroneous radio altimeter indications may affect autothrottles and flight director guidance; manually intervene if necessary.

Non-Precision Approaches

Non-precision instrument approaches can be conducted using LNAV/VNAV with flight directors, autopilot, and autothrottle to published BARO minimums.

Landing

For landing, the Auto Ground Spoiler function may require manual extension. If manual extension is required, calculate landing distance requirements as specified in Appendix 3, Auto Ground Spoiler System Inop, of this AFM.

During Go-Around and Missed Approach

If go-around is required, initial flight director pitch guidance will provide proper speed and pitch targets, but, under certain 5G interference conditions, the flight director cannot be commanded from the Flight Control Panel (FCP) to provide speed or heading guidance, and may not provide altitude capture guidance. If this guidance is not available, manually comply with missed approach procedures, including altitude constraints.

(3) For airplanes identified in paragraph (c)(7) of this AD: Within 2 days after May 23, 2022 (the effective date of AD 2022-09-18), revise the Operating Procedures Section of the existing AFM to include the information specified in figure 8 to paragraph (i)(3) of this AD. This may be done by inserting a copy of figure 8 to paragraph (i)(3) of this AD into the Operating Procedures Section of the existing AFM.

Figure 8 to paragraph (i)(3) – *AFM Operating Procedures Revision for Model MD-10*

(Required by AD 2022-09-18)

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

ILS Approaches

For ILS approaches not prohibited by AD 2021-23-12, disconnect the autopilot prior to glideslope intercept.

Note: Possible erroneous radio altimeter indications may affect autothrottles and flight director guidance; manually intervene if necessary.

Non-Precision Approaches

Non-precision instrument approaches can be conducted using LNAV/VNAV with flight directors, autopilot, and autothrottle to published BARO minimums.

Landing

For landing, the Auto Ground Spoiler function may require manual extension. If manual extension is required, calculate landing distance requirements according to the following tables, as applicable.

SERIES 10
50/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MANUAL SPOILERS

Weight 1000 LB		260	280	300	320	340	360	380	400
S.L.	DRY	2800	2900	3030	3160	3290	3410	3540	3660
STD=15°C	WET	3670	3810	3990	4190	4370	4540	4730	4900
2000 FT	DRY	2920	3030	3170	3310	3450	3580	3720	3840
STD=11°C	WET	3840	3990	4190	4400	4600	4780	4980	5170
4000 FT	DRY	3060	3170	3320	3480	3620	3760	3920	4050
STD=7°C	WET	4040	4190	4410	4630	4850	5040	5260	5460
6000 FT	DRY	3210	3330	3490	3650	3820	3960	4130	4270
STD=3°C	WET	4240	4410	4650	4890	5120	5330	5570	5780
8000 FT	DRY	3360	3490	3670	3840	4020	4180	4360	4520
STD=-1°C	WET	4460	4650	4900	5160	5410	5640	5900	6130
10000 FT	DRY	3530	3670	3860	4060	4250	4420	4610	4780
STD=-5°C	WET	4690	4910	5180	5460	5730	5980	6260	6510

NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop. (Includes Air Run Distance)

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-7	-10
ABOVE standard day	+37	+44

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-46	-96
DOWNHILL	+257	+459

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-20	-34
TAILWIND	+50	+68

SERIES 10
35/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MANUAL SPOILERS

Weight 1000 LB		260	280	300	320	340	360	380	400
S.L.	DRY	2800	2900	3030	3170	3300	3420	3560	3680
STD=15°C	WET	3710	3850	4050	4250	4450	4620	4820	4990
2000 FT	DRY	2930	3030	3180	3330	3470	3600	3740	3870
STD=11°C	WET	3890	4040	4260	4480	4680	4870	5080	5270
4000 FT	DRY	3070	3180	3330	3490	3640	3790	3940	4080
STD=7°C	WET	4090	4260	4480	4720	4940	5150	5370	5580
6000 FT	DRY	3210	3340	3500	3670	3840	3990	4160	4310
STD=3°C	WET	4300	4490	4730	4980	5220	5440	5690	5910
8000 FT	DRY	3380	3510	3680	3870	4050	4210	4400	4560
STD=-1°C	WET	4530	4730	4990	5260	5530	5770	6030	6280
10000 FT	DRY	3550	3690	3880	4090	4280	4460	4650	4830
STD=-5°C	WET	4790	5000	5280	5580	5860	6120	6410	6670

NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop. (Includes Air Run Distance)

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-7	-10
ABOVE standard day	+17	+25

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-47	-99
DOWNHILL	+125	+300

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-20	-34
TAILWIND	+30	+51

SERIES 30
50/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MANUAL SPOILERS

Weight 1000 LB		340	360	380	400	420	440	460	480
S.L.	DRY	3380	3530	3670	3800	3910	4050	4210	4370
STD=15°C	WET	4500	4700	4900	5100	5270	5470	5690	5920
2000 FT	DRY	3550	3710	3850	4000	4120	4270	4440	4610
STD=11°C	WET	4740	4960	5180	5390	5570	5790	6030	6280
4000 FT	DRY	3740	3900	4060	4220	4350	4510	4710	4910
STD=7°C	WET	5010	5250	5480	5710	5910	6150	6440	6720
6000 FT	DRY	3930	4110	4280	4450	4590	4770	5010	5240
STD=3°C	WET	5290	5550	5800	6050	6260	6520	6860	7200
8000 FT	DRY	4140	4330	4510	4720	4910	5120	5390	5650
STD=-1°C	WET	5590	5860	6130	6430	6710	7020	7390	7770
10000 FT	DRY	4370	4570	4770	5010	5260	5510	5800	6110
STD=-5°C	WET	5910	6210	6500	6840	7200	7560	7970	8410

NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop. (Includes Air Run Distance)

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-10	-14
ABOVE standard day	+23	+34

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-54	-116
DOWNHILL	+168	+380

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-25	-41
TAILWIND	+79	+63

SERIES 30
35/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MANUAL SPOILERS

Weight 1000 LB		340	360	380	400	420	440	460	480
S.L.	DRY	3500	3650	3810	3950	4070	4220	4390	4560
STD=15°C	WET	4700	4920	5140	5360	5540	5760	6010	6250
2000 FT	DRY	3680	3840	4010	4160	4300	4460	4640	4820
STD=11°C	WET	4960	5190	5440	5670	5870	6110	6380	6640
4000 FT	DRY	3870	4040	4230	4400	4540	4720	4930	5150
STD=7°C	WET	5250	5500	5770	6020	6240	6500	6810	7120
6000 FT	DRY	4080	4270	4460	4650	4800	4990	5250	5510
STD=3°C	WET	5550	5830	6110	6390	6620	6910	7270	7640
8000 FT	DRY	4300	4500	4710	4930	5140	5370	5650	5930
STD=-1°C	WET	5870	6170	6480	6800	7100	7430	7840	8240

10000 FT	DRY	4540	4760	4990	5250	5500	5780	6090	6400
STD=-5°C	WET	6210	6540	6870	7250	7610	8010	8460	8900
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop. (Includes Air Run Distance)									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-10	-15
ABOVE standard day	+26	+37

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-58	-120
DOWNHILL	+179	+411

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-26	-42
TAILWIND	+86	+68

During Go-Around and Missed Approach

If go-around is required, initial flight director pitch guidance will provide proper speed and pitch targets, but, under certain 5G interference conditions, the flight director cannot be commanded from the Flight Control Panel (FCP) to provide speed or heading guidance, and may not provide altitude capture guidance. If this guidance is not available, manually comply with missed approach procedures, including altitude constraints.

(4) For airplanes identified in paragraph (c)(8) of this AD: Within 2 days after the effective date of this AD, revise the Operating Procedures Section of the existing AFM to include the information specified in figure 9 to paragraph (i)(4) of this AD. This may be done by inserting a copy of figure 9 to paragraph (i)(4) of this AD into the Operating Procedures Section of the existing AFM.

Figure 9 to paragraph (i)(4) – *AFM Operating Procedures Revision for Model MD-11*

(Required by AD 2022-09-18)

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

ILS Approaches

For ILS approaches not prohibited by AD 2021-23-12, disconnect the autopilot prior to glideslope intercept.

Note: Possible erroneous radio altimeter indications may affect autothrottles and flight director guidance; manually intervene if necessary.

Non-Precision Approaches

Non-precision instrument approaches can be conducted using LNAV/VNAV with flight directors, autopilot, and autothrottle to published BARO minimums.

Landing

For landing, the Auto Ground Spoiler function may require manual extension. If manual extension is required, calculate landing distance requirements according to the following tables, as applicable.

50/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MAN SPOILERS

General Electric CF6-80C2 Engines

Weight 1000 LB	360	380	400	420	440	460	480	500

S.L.	DRY	4315	4480	4650	4803	4949	5126	5274	5453
STD=15°C	WET	5156	5388	5604	5805	6008	6240	6443	6677
2000 FT	DRY	4520	4695	4876	5039	5195	5384	5542	5734
STD=11°C	WET	5466	5688	5927	6140	6355	6605	6827	7084
4000 FT	DRY	4738	4925	5118	5292	5459	5661	5830	6036
STD=7°C	WET	5777	6021	6275	6510	6743	7007	7241	7527
6000 FT	DRY	4975	5175	5381	5568	5747	5963	6145	6367
STD=3°C	WET	6125	6392	6658	6917	7166	7449	7710	7999
8000 FT	DRY	5229	5443	5663	5864	6057	6290	6486	6725
STD=-1°C	WET	6497	6787	7084	7354	7628	7939	8212	8538
10000 FT	DRY	5505	5734	5972	6188	6418	6693	6931	7208
STD=-5°C	WET	6920	7220	7544	7842	8155	8532	8853	9223
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop (includes air run distances).									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-12	-14
ABOVE standard day	+25	+35

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-84	-137
DOWNHILL	+229	+444

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-32	-46
TAILWIND	+83	+132

35/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MAN SPOILERS

General Electric CF6-80C2 Engines

Weight 1000 LB		360	380	400	420	440	460	480	500
S.L.	DRY	4632	4803	4974	5155	5340	5496	5685	5855
STD=15°C	WET	5577	5795	6020	6257	6502	6717	6969	7197
2000 FT	DRY	4856	5039	5221	5414	5613	5780	5983	6165
STD=11°C	WET	5890	6131	6373	6631	6893	7128	7394	7642
4000 FT	DRY	5096	5291	5486	5693	5906	6085	6304	6500
STD=7°C	WET	6249	6509	6763	7037	7317	7571	7864	8133
6000 FT	DRY	5357	5566	5775	5998	6227	6420	6655	6867
STD=3°C	WET	6631	6914	7190	7489	7798	8060	8380	8674
8000 FT	DRY	5637	5862	6087	6326	6574	6782	7037	7317
STD=-1°C	WET	7047	7348	7660	7980	8308	8600	8943	9324
10000 FT	DRY	5943	6185	6428	6687	6963	7267	7546	7854
STD=-5°C	WET	7513	7841	8166	8522	8888	9294	9675	10074
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop (includes air run distances).									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-13	-16
ABOVE standard day	+29	+39

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-94	-155
DOWNHILL	+275	+522

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-35	-50
TAILWIND	+95	+143

50/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MAN SPOILERS

Pratt & Whitney PW-4460/PW-4462 Engines

Weight 1000 LB		360	380	400	420	440	460	480	500
S.L.	DRY	4316	4476	4641	4791	4963	5113	5262	5443
STD=15°C	WET	5050	5269	5498	5710	5922	6157	6371	6626
2000 FT	DRY	4526	4697	4875	5036	5190	5377	5535	5728
STD=11°C	WET	5343	5585	5824	6053	6282	6531	6760	7035
4000 FT	DRY	4751	4935	5125	5297	5463	5663	5832	6038
STD=7°C	WET	5664	5914	6185	6425	6673	6943	7189	7477
6000 FT	DRY	4993	5190	5394	5580	5757	5973	6154	6375
STD=3°C	WET	6003	6284	6566	6826	7094	7392	7651	7969
8000 FT	DRY	5253	5465	5684	5883	6075	6307	6503	6741
STD=-1°C	WET	6382	6677	6983	7266	7550	7869	8158	8494
10000 FT	DRY	5534	5762	5998	6214	6443	6718	6955	7232
STD=-5°C	WET	6783	7107	7440	7749	8076	8457	8797	9182

NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 60 KIAS, then forward idle to stop (includes air run distances).

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-11	-13
ABOVE standard day	+25	+34

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-83	-138
DOWNHILL	+228	+443

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-33	-45
TAILWIND	+83	+128

35/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MAN SPOILERS

Pratt & Whitney PW-4460/PW-4462 Engines

Weight 1000 LB		360	380	400	420	440	460	480	500
S.L.	DRY	4622	4790	4958	5138	5326	5484	5677	5850
STD=15°C	WET	5422	5661	5902	6154	6422	6647	6923	7169
2000 FT	DRY	4856	5035	5215	5406	5605	5773	5979	6165
STD=11°C	WET	5755	6005	6265	6533	6812	7062	7353	7626
4000 FT	DRY	5105	5298	5491	5696	5908	6087	6307	6506
STD=7°C	WET	6102	6386	6659	6950	7251	7511	7825	8121
6000 FT	DRY	5373	5581	5788	6009	6238	6430	6665	6879
STD=3°C	WET	6493	6787	7084	7397	7724	8013	8345	8656
8000 FT	DRY	5662	5885	6109	6347	6594	6802	7056	7285
STD=-1°C	WET	6907	7220	7543	7887	8236	8548	8916	9254
10000 FT	DRY	5975	6216	6458	6716	6992	7296	7575	7882
STD=-5°C	WET	7353	7703	8047	8423	8815	9243	9646	10082

NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 60 KIAS, then forward idle to stop (includes air run distances).

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-11	-15
ABOVE standard day	+28	+39

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-93	-151
DOWNHILL	+273	+524

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-35	-48
TAILWIND	+94	+140

During Go-Around and Missed Approach

If go-around is required, initial flight director pitch guidance will provide proper speed and pitch targets, but, under certain 5G interference conditions, the flight director cannot be commanded from the Flight Control Panel (FCP) to provide speed or heading guidance, and may not provide altitude capture guidance. If this guidance is not available, manually comply with missed approach procedures, including altitude constraints.

(5) For airplanes identified in paragraph (c)(9) of this AD: Within 2 days after the effective date of this AD, revise the Operating Procedures Section of the existing AFM to include the information specified in figure 10 to paragraph (i)(5) of this AD. This may be done by inserting a copy of figure 10 to paragraph (i)(5) of this AD into the Operating Procedures Section of the existing AFM.

Figure 10 to paragraph (i)(5) – *AFM Operating Procedures Revision for Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), MD-88, and MD-90-30*

(Required by AD 2022-09-18)

Radio Altimeter 5G C-Band Interference, Approaches

ILS Approaches

For ILS approaches not prohibited by AD 2021-23-12, disconnect the autopilot and autothrottles, and place both flight director switches to OFF prior to glideslope intercept.

Note: Possible erroneous radio altimeter indications may affect autopilot, autothrottles, and flight director guidance; manually intervene if necessary.

Non-Precision Approaches

Non-precision instrument approaches can be conducted using LNAV/VNAV with flight directors, autopilot, and autothrottle to published BARO minimums.

(j) New Requirement: AFM Limitations Revision for Non-Radio Altimeter Tolerant Airplanes

(1) For non-radio altimeter tolerant airplanes identified in paragraphs (c)(1) and (c)(3) through (6) of this AD, do the actions specified in paragraphs (j)(1)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Limitations Section of the existing AFM to include the information specified in figure 11 to paragraph (j)(1) of this AD. This may be done by inserting a copy of figure 11 to paragraph (j)(1) of this AD into the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (h)(1) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 11 to paragraph (j)(1) of this AD, remove the AFM revision required by paragraph (h)(1) of this AD.

Figure 11 to paragraph (j)(1) – *AFM Limitations Revision for Model 707, 727, DC-8, DC-9 (except DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87)), and DC-10*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approach Procedures
Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required for ILS approaches on runways in the contiguous U.S. airspace.

ILS Approaches
Operators must use the Radio Altimeter 5G C-Band Interference, ILS Approaches procedure contained in the Operating Procedures Section of this AFM.

(2) For non-radio altimeter tolerant airplanes identified in paragraphs (c)(2), (7), and (8) of this AD, do the actions specified in paragraphs (j)(2)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Limitations Section of the existing AFM to include the information specified in figure 12 to paragraph (j)(2) of this AD. This may be done by inserting a copy of figure 12 to paragraph (j)(2) of this AD into the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (h)(2) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 12 to paragraph (j)(2) of this AD, remove the AFM revision required by paragraph (h)(2) of this AD.

Figure 12 to paragraph (j)(2) – *AFM Limitations Revision for Model 717, MD-10, and MD-11*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around Procedures
Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required for approaches, landings, or go-arounds on runways, in the contiguous U.S. airspace.

ILS and Non Precision Approaches, Landing, and Go-Around
Operators must use the Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around procedures contained in the Operating Procedures Section of this AFM.

(3) For non-radio altimeter tolerant airplanes identified in paragraph (c)(9) of this AD, do the actions specified in paragraphs (j)(3)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Limitations Section of the existing AFM to include the information specified in figure 13 to paragraph (j)(3) of this AD. This may be done by inserting a copy of figure 13 to paragraph (j)(3) of this AD into the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (h)(3) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 13 to paragraph (j)(3) of this AD, remove the AFM revision required by paragraph (h)(3) of this AD.

Figure 13 to paragraph (j)(3) – *AFM Limitations Revision for Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), MD-88, and MD-90-30*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approach Procedures
Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required for approaches in the contiguous U.S. airspace.

ILS and Non Precision Approaches
Operators must use the Radio Altimeter 5G C-Band Interference, Approaches procedures contained in the Operating Procedures Section of this AFM.

(k) New Requirement: AFM Limitations Revision for Radio Altimeter Tolerant Airplanes

(1) For radio altimeter tolerant airplanes identified in paragraphs (c)(1) and (c)(3) through (6) of this AD, do the actions specified in paragraphs (k)(1)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Limitations Section of the existing AFM to include the information specified in figure 14 to paragraph (k)(1) of this AD. This may be done by inserting a copy of figure 14 to paragraph (k)(1) of this AD into the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (h)(1) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 14 to paragraph (k)(1) of this AD, remove the AFM revision required by paragraph (h)(1) of this AD.

Figure 14 to paragraph (k)(1) – *AFM Limitations Revision for Model 707, 727, DC-8, DC-9 (except DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87)), and DC-10*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approach Procedures
Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required for ILS approaches on runways in the contiguous U.S. airspace unless operating at a 5G C-Band mitigated airport as identified in an FAA *Domestic Notice*.

ILS Approaches
Operators must use the Radio Altimeter 5G C-Band Interference, ILS Approaches procedure contained in the Operating Procedures Section of this AFM.

(2) For radio altimeter tolerant airplanes identified in paragraphs (c)(2), (7), and (8) of this AD, do the actions specified in paragraphs (k)(2)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Limitations Section of the existing AFM to include the information specified in figure 15 to paragraph (k)(2) of this AD. This may be done by inserting a copy of figure 15 to paragraph (k)(2) of this AD into the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (h)(2) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 15 to paragraph (k)(2) of this AD, remove the AFM revision required by paragraph (h)(2) of this AD.

Figure 15 to paragraph (k)(2) – *AFM Limitations Revision for Model 717, MD-10, and MD-11*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around Procedures
Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required for approaches, landings, or go-arounds on runways, in the contiguous U.S. airspace unless operating at a 5G C-Band mitigated airport as identified in an FAA *Domestic Notice*.

ILS and Non Precision Approaches, Landing, and Go-Around
Operators must use the Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around procedures contained in the Operating Procedures Section of this AFM.

(3) For radio altimeter tolerant airplanes identified in paragraph (c)(9) of this AD, do the actions specified in paragraphs (k)(3)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Limitations Section of the existing AFM to include the information specified in figure 16 to paragraph (k)(3) of this AD. This may be done by inserting a copy of figure 16 to paragraph (k)(3) of this AD into the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (h)(3) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 16 to paragraph (k)(3) of this AD, remove the AFM revision required by paragraph (h)(3) of this AD.

Figure 16 to paragraph (k)(3) – *AFM Limitations Revision for Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), MD-88, and MD-90-30*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approach Procedures
Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required for approaches in the contiguous U.S. airspace unless operating at a 5G C-Band mitigated airport as identified in an FAA *Domestic Notice*.

ILS and Non Precision Approaches
Operators must use the Radio Altimeter 5G C-Band Interference, Approaches procedures contained in the Operating Procedures Section of this AFM.

(l) New Requirement: AFM Operating Procedures Revision

(1) For airplanes identified in paragraphs (c)(1) and (3) through (6) of this AD, do the actions specified in paragraphs (l)(1)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Operating Procedures Section of the existing AFM to include the information specified in figure 17 to paragraph (l)(1) of this AD. This may be done by inserting a copy of figure 17 to paragraph (l)(1) of this AD into the Operating Procedures Section of the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (i)(1) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 17 to paragraph (l)(1) of this AD, remove the AFM revision required by paragraph (i)(1) of this AD.

Figure 17 to paragraph (1)(1) – *AFM Operating Procedures Revision for Model 707, 727, DC-8, DC-9 (except DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87)), and DC-10*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, ILS Approaches

ILS Approaches

For ILS approaches other than SA CAT I, SA CAT II, CAT II, and CAT III, disconnect the autopilot and autothrottles, and place both flight director switches to OFF prior to glideslope intercept.

(2) For airplanes identified in paragraph (c)(2) of this AD, do the actions specified in paragraphs (l)(2)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Operating Procedures Section of the existing AFM to include the information specified in figure 18 to paragraph (l)(2) of this AD. This may be done by inserting a copy of figure 18 to paragraph (l)(2) of this AD into the Operating Procedures Section of the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (i)(2) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 18 to paragraph (l)(2) of this AD, remove the AFM revision required by paragraph (i)(2) of this AD.

Figure 18 to paragraph (l)(2) – *AFM Operating Procedures Revision for Model 717*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

ILS Approaches

For ILS approaches other than SA CAT I, SA CAT II, CAT II, and CAT III, disconnect the autopilot prior to glideslope intercept.

Note: Possible erroneous radio altimeter indications may affect autothrottles and flight director guidance; manually intervene if necessary.

Non-Precision Approaches

Non-precision instrument approaches can be conducted using LNAV/VNAV with flight directors, autopilot, and autothrottle to published BARO minimums.

Landing

For landing, the Auto Ground Spoiler function may require manual extension. If manual extension is required, calculate landing distance requirements as specified in Appendix 3, Auto Ground Spoiler System Inop, of this AFM.

During Go-Around and Missed Approach

If go-around is required, initial flight director pitch guidance will provide proper speed and pitch targets, but, under certain 5G interference conditions, the flight director cannot be commanded from the Flight Control Panel (FCP) to provide speed or heading guidance, and may not provide altitude capture guidance. If this guidance is not available, manually comply with missed approach procedures, including altitude constraints.

(3) For airplanes identified in paragraph (c)(7) of this AD, do the actions specified in paragraphs (l)(3)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Operating Procedures Section of the existing AFM to include the information specified in figure 19 to paragraph (l)(3) of this AD. This may be done by inserting a copy of figure 19 to paragraph (l)(3) of this AD into the Operating Procedures Section of the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (i)(3) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 19 to paragraph (l)(3) of this AD, remove the AFM revision required by paragraph (i)(3) of this AD.

Figure 19 to paragraph (l)(3) – *AFM Operating Procedures Revision for Model MD-10*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

ILS Approaches

For ILS approaches other than SA CAT I, SA CAT II, CAT II, and CAT III, disconnect the autopilot prior to glideslope intercept.

Note: Possible erroneous radio altimeter indications may affect autothrottles and flight director guidance; manually intervene if necessary.

Non-Precision Approaches

Non-precision instrument approaches can be conducted using LNAV/VNAV with flight directors, autopilot, and autothrottle to published BARO minimums.

Landing

For landing, the Auto Ground Spoiler function may require manual extension. If manual extension is required, calculate landing distance requirements according to the following tables, as applicable.

SERIES 10
50/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MANUAL SPOILERS

Weight 1000 LB		260	280	300	320	340	360	380	400
S.L.	DRY	2800	2900	3030	3160	3290	3410	3540	3660
STD=15°C	WET	3670	3810	3990	4190	4370	4540	4730	4900
2000 FT	DRY	2920	3030	3170	3310	3450	3580	3720	3840
STD=11°C	WET	3840	3990	4190	4400	4600	4780	4980	5170
4000 FT	DRY	3060	3170	3320	3480	3620	3760	3920	4050
STD=7°C	WET	4040	4190	4410	4630	4850	5040	5260	5460
6000 FT	DRY	3210	3330	3490	3650	3820	3960	4130	4270
STD=3°C	WET	4240	4410	4650	4890	5120	5330	5570	5780
8000 FT	DRY	3360	3490	3670	3840	4020	4180	4360	4520
STD=-1°C	WET	4460	4650	4900	5160	5410	5640	5900	6130
10000 FT	DRY	3530	3670	3860	4060	4250	4420	4610	4780

STD=-5°C	WET	4690	4910	5180	5460	5730	5980	6260	6510
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop. (Includes Air Run Distance)									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-7	-10
ABOVE standard day	+37	+44

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-46	-96
DOWNHILL	+257	+459

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-20	-34
TAILWIND	+50	+68

SERIES 10
35/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MANUAL SPOILERS

Weight 1000 LB		260	280	300	320	340	360	380	400
S.L.	DRY	2800	2900	3030	3170	3300	3420	3560	3680
STD=15°C	WET	3710	3850	4050	4250	4450	4620	4820	4990
2000 FT	DRY	2930	3030	3180	3330	3470	3600	3740	3870
STD=11°C	WET	3890	4040	4260	4480	4680	4870	5080	5270
4000 FT	DRY	3070	3180	3330	3490	3640	3790	3940	4080
STD=7°C	WET	4090	4260	4480	4720	4940	5150	5370	5580
6000 FT	DRY	3210	3340	3500	3670	3840	3990	4160	4310

STD=3°C	WET	4300	4490	4730	4980	5220	5440	5690	5910
8000 FT	DRY	3380	3510	3680	3870	4050	4210	4400	4560
STD=-1°C	WET	4530	4730	4990	5260	5530	5770	6030	6280
10000 FT	DRY	3550	3690	3880	4090	4280	4460	4650	4830
STD=-5°C	WET	4790	5000	5280	5580	5860	6120	6410	6670
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop. (Includes Air Run Distance)									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-7	-10
ABOVE standard day	+17	+25

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-47	-99
DOWNHILL	+125	+300

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-20	-34
TAILWIND	+30	+51

SERIES 30
50/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MANUAL SPOILERS

Weight 1000 LB		340	360	380	400	420	440	460	480
S.L.	DRY	3380	3530	3670	3800	3910	4050	4210	4370
STD=15°C	WET	4500	4700	4900	5100	5270	5470	5690	5920
2000 FT	DRY	3550	3710	3850	4000	4120	4270	4440	4610
STD=11°C	WET	4740	4960	5180	5390	5570	5790	6030	6280
4000 FT	DRY	3740	3900	4060	4220	4350	4510	4710	4910
STD=7°C	WET	5010	5250	5480	5710	5910	6150	6440	6720

6000 FT	DRY	3930	4110	4280	4450	4590	4770	5010	5240
STD=3°C	WET	5290	5550	5800	6050	6260	6520	6860	7200
8000 FT	DRY	4140	4330	4510	4720	4910	5120	5390	5650
STD=-1°C	WET	5590	5860	6130	6430	6710	7020	7390	7770
10000 FT	DRY	4370	4570	4770	5010	5260	5510	5800	6110
STD=-5°C	WET	5910	6210	6500	6840	7200	7560	7970	8410
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop. (Includes Air Run Distance)									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-10	-14
ABOVE standard day	+23	+34

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-54	-116
DOWNHILL	+168	+380

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-25	-41
TAILWIND	+79	+63

SERIES 30
35/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MANUAL SPOILERS

Weight 1000 LB		340	360	380	400	420	440	460	480
S.L.	DRY	3500	3650	3810	3950	4070	4220	4390	4560
STD=15°C	WET	4700	4920	5140	5360	5540	5760	6010	6250
2000 FT	DRY	3680	3840	4010	4160	4300	4460	4640	4820

STD=11°C	WET	4960	5190	5440	5670	5870	6110	6380	6640
4000 FT	DRY	3870	4040	4230	4400	4540	4720	4930	5150
STD=7°C	WET	5250	5500	5770	6020	6240	6500	6810	7120
6000 FT	DRY	4080	4270	4460	4650	4800	4990	5250	5510
STD=3°C	WET	5550	5830	6110	6390	6620	6910	7270	7640
8000 FT	DRY	4300	4500	4710	4930	5140	5370	5650	5930
STD=-1°C	WET	5870	6170	6480	6800	7100	7430	7840	8240
10000 FT	DRY	4540	4760	4990	5250	5500	5780	6090	6400
STD=-5°C	WET	6210	6540	6870	7250	7610	8010	8460	8900
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop. (Includes Air Run Distance)									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-10	-15
ABOVE standard day	+26	+37

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-58	-120
DOWNHILL	+179	+411

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-26	-42
TAILWIND	+86	+68

During Go-Around and Missed Approach

If go-around is required, initial flight director pitch guidance will provide proper speed and pitch targets, but, under certain 5G interference conditions, the flight director cannot be commanded from the Flight Control Panel (FCP) to provide speed or heading guidance, and may not provide altitude capture guidance. If this guidance is not available, manually comply with missed approach procedures, including altitude constraints.

(4) For airplanes identified in paragraph (c)(8) of this AD, do the actions specified in paragraphs (l)(4)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Operating Procedures Section of the existing AFM to include the information specified in figure 20 to paragraph (l)(4) of this AD. This may be done by inserting a copy of figure 20 to paragraph (l)(4) of this AD into the Operating Procedures Section of the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (i)(4) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 20 to paragraph (l)(4) of this AD, remove the AFM revision required by paragraph (i)(4) of this AD.

Figure 20 to paragraph (l)(4) – *AFM Operating Procedures Revision for Model MD-11*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

ILS Approaches

For ILS approaches other than SA CAT I, SA CAT II, CAT II, and CAT III, disconnect the autopilot prior to glideslope intercept.

Note: Possible erroneous radio altimeter indications may affect autothrottles and flight director guidance; manually intervene if necessary.

Non-Precision Approaches

Non-precision instrument approaches can be conducted using LNAV/VNAV with flight directors, autopilot, and autothrottle to published BARO minimums.

Landing

For landing, the Auto Ground Spoiler function may require manual extension. If manual extension is required, calculate landing distance requirements according to the following tables, as applicable.

50/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MAN SPOILERS

General Electric CF6-80C2 Engines

Weight 1000 LB		360	380	400	420	440	460	480	500
S.L.	DRY	4315	4480	4650	4803	4949	5126	5274	5453
STD=15°C	WET	5156	5388	5604	5805	6008	6240	6443	6677
2000 FT	DRY	4520	4695	4876	5039	5195	5384	5542	5734
STD=11°C	WET	5466	5688	5927	6140	6355	6605	6827	7084
4000 FT	DRY	4738	4925	5118	5292	5459	5661	5830	6036
STD=7°C	WET	5777	6021	6275	6510	6743	7007	7241	7527
6000 FT	DRY	4975	5175	5381	5568	5747	5963	6145	6367
STD=3°C	WET	6125	6392	6658	6917	7166	7449	7710	7999
8000 FT	DRY	5229	5443	5663	5864	6057	6290	6486	6725
STD=-1°C	WET	6497	6787	7084	7354	7628	7939	8212	8538
10000 FT	DRY	5505	5734	5972	6188	6418	6693	6931	7208
STD=-5°C	WET	6920	7220	7544	7842	8155	8532	8853	9223
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop (includes air run distances).									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-12	-14
ABOVE standard day	+25	+35

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-84	-137
DOWNHILL	+229	+444

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-32	-46
TAILWIND	+83	+132

35/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MAN SPOILERS

General Electric CF6-80C2 Engines

Weight 1000 LB		360	380	400	420	440	460	480	500
S.L.	DRY	4632	4803	4974	5155	5340	5496	5685	5855
STD=15°C	WET	5577	5795	6020	6257	6502	6717	6969	7197
2000 FT	DRY	4856	5039	5221	5414	5613	5780	5983	6165
STD=11°C	WET	5890	6131	6373	6631	6893	7128	7394	7642
4000 FT	DRY	5096	5291	5486	5693	5906	6085	6304	6500
STD=7°C	WET	6249	6509	6763	7037	7317	7571	7864	8133
6000 FT	DRY	5357	5566	5775	5998	6227	6420	6655	6867
STD=3°C	WET	6631	6914	7190	7489	7798	8060	8380	8674
8000 FT	DRY	5637	5862	6087	6326	6574	6782	7037	7317
STD=-1°C	WET	7047	7348	7660	7980	8308	8600	8943	9324
10000 FT	DRY	5943	6185	6428	6687	6963	7267	7546	7854
STD=-5°C	WET	7513	7841	8166	8522	8888	9294	9675	10074
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 80 KIAS, then reverse idle to 60 KIAS, then forward idle to stop (includes air run distances).									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-13	-16
ABOVE standard day	+29	+39

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-94	-155

DOWNHILL	+275	+522

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-35	-50
TAILWIND	+95	+143

50/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MAN SPOILERS

Pratt & Whitney PW-4460/PW-4462 Engines

Weight 1000 LB		360	380	400	420	440	460	480	500
S.L.	DRY	4316	4476	4641	4791	4963	5113	5262	5443
STD=15°C	WET	5050	5269	5498	5710	5922	6157	6371	6626
2000 FT	DRY	4526	4697	4875	5036	5190	5377	5535	5728
STD=11°C	WET	5343	5585	5824	6053	6282	6531	6760	7035
4000 FT	DRY	4751	4935	5125	5297	5463	5663	5832	6038
STD=7°C	WET	5664	5914	6185	6425	6673	6943	7189	7477
6000 FT	DRY	4993	5190	5394	5580	5757	5973	6154	6375
STD=3°C	WET	6003	6284	6566	6826	7094	7392	7651	7969
8000 FT	DRY	5253	5465	5684	5883	6075	6307	6503	6741
STD=-1°C	WET	6382	6677	6983	7266	7550	7869	8158	8494
10000 FT	DRY	5534	5762	5998	6214	6443	6718	6955	7232
STD=-5°C	WET	6783	7107	7440	7749	8076	8457	8797	9182

NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 60 KIAS, then forward idle to stop (includes air run distances).

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-11	-13
ABOVE standard day	+25	+34

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-83	-138
DOWNHILL	+228	+443

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-33	-45
TAILWIND	+83	+128

35/EXT ESTIMATED LANDING DISTANCES (FEET)
USE MAN SPOILERS

Pratt & Whitney PW-4460/PW-4462 Engines

Weight 1000 LB		360	380	400	420	440	460	480	500
S.L.	DRY	4622	4790	4958	5138	5326	5484	5677	5850
STD=15°C	WET	5422	5661	5902	6154	6422	6647	6923	7169
2000 FT	DRY	4856	5035	5215	5406	5605	5773	5979	6165
STD=11°C	WET	5755	6005	6265	6533	6812	7062	7353	7626
4000 FT	DRY	5105	5298	5491	5696	5908	6087	6307	6506
STD=7°C	WET	6102	6386	6659	6950	7251	7511	7825	8121
6000 FT	DRY	5373	5581	5788	6009	6238	6430	6665	6879

STD=3°C	WET	6493	6787	7084	7397	7724	8013	8345	8656
8000 FT	DRY	5662	5885	6109	6347	6594	6802	7056	7285
STD=-1°C	WET	6907	7220	7543	7887	8236	8548	8916	9254
10000 FT	DRY	5975	6216	6458	6716	6992	7296	7575	7882
STD=-5°C	WET	7353	7703	8047	8423	8815	9243	9646	10082
NOTE: Standard day, no wind, zero slope, three engines at maximum reverse thrust to 60 KIAS, then forward idle to stop (includes air run distances).									

CORRECTIONS:

Temperature: Valid from STD -20°C to STD +40°C

FEET PER °C	DRY	WET
BELOW standard day	-11	-15
ABOVE standard day	+28	+39

Slope: Valid from -2% downhill to +2% uphill

FEET PER 1% SLOPE	DRY	WET
UPHILL	-93	-151
DOWNHILL	+273	+524

Wind: Valid from -10 knot tailwind to +20 knot headwind

FEET PER KNOT	DRY	WET
HEADWIND	-35	-48
TAILWIND	+94	+140

During Go-Around and Missed Approach

If go-around is required, initial flight director pitch guidance will provide proper speed and pitch targets, but, under certain 5G interference conditions, the flight director cannot be commanded from the Flight Control Panel (FCP) to provide speed or heading guidance, and may not provide altitude capture guidance. If this guidance is not available, manually comply with missed approach procedures, including altitude constraints.

(5) For airplanes identified in paragraph (c)(9) of this AD, do the actions specified in paragraphs (l)(5)(i) and (ii) of this AD.

(i) On or before June 30, 2023, revise the Operating Procedures Section of the existing AFM to include the information specified in figure 21 to paragraph (l)(5) of this AD. This may be done by inserting a copy of figure 21 to paragraph (l)(5) of this AD into the Operating Procedures Section of the existing AFM. Incorporating the AFM revision required by this paragraph terminates the AFM revision required by paragraph (i)(5) of this AD.

(ii) Before further flight after incorporating the limitations specified in figure 21 to paragraph (l)(5) of this AD, remove the AFM revision required by paragraph (i)(5) of this AD.

Figure 21 to paragraph (l)(5) – *AFM Operating Procedures Revision for Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), MD-88, and MD-90-30*

(Required by AD 20-**-**-**)**

Radio Altimeter 5G C-Band Interference, Approaches

ILS Approaches

For ILS approaches other than SA CAT I, SA CAT II, CAT II, and CAT III, disconnect the autopilot and autothrottles, and place both flight director switches to OFF prior to glideslope intercept.

Note: Possible erroneous radio altimeter indications may affect autopilot, autothrottles, and flight director guidance; manually intervene if necessary.

Non-Precision Approaches

Non-precision instrument approaches can be conducted using LNAV/VNAV with flight directors, autopilot, and autothrottle to published BARO minimums.

(m) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Operational Safety Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the

manager of the Operational Safety Branch, send it to the attention of the person identified in paragraph (n) of this AD. Information may be emailed to: AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(3) AMOCs approved for AD 2021-23-12, Amendment 39-21810 (86 FR 69984, December 9, 2021) providing relief for specific radio altimeter installations are approved as AMOCs for the requirements specified in paragraph (h) of this AD until June 30, 2023.

(n) Related Information

For more information about this AD, contact Brett Portwood, Continued Operational Safety Technical Advisor, COS Program Management Section, Operational Safety Branch, FAA, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 817-222-5390; email: operationalsafety@faa.gov.

(o) Material Incorporated by Reference

None.

Issued on April 28, 2023.

Michael Linegang, Acting Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.
[FR Doc. 2023-09431 Filed: 5/1/2023 4:15 pm; Publication Date: 5/3/2023]